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Pollution

Biosolids: mix human waste with toxic chemicals, then spread on crops



▲ Dairy cows rest outside at Stoneridge Farm in Arundel, Maine, in August 2019. The farm was forced to shut down after sludge spread on the land was linked to high levels of PFAS in the milk. Photograph: Robert F Bukaty/AP

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By some estimates, Americans send about 300m pounds of feces daily from the nation's toilets to wastewater treatment plants.

While the water is cleaned and discharged, the remaining toxic sewage sludge stays at the treatment plant, and it's what Sierra Club environmentalist Nancy Raine calls "the most pollutant-rich manmade substance on Earth".

This "biosolid" sludge is expensive to dispose of because it must be landfilled, but the waste management industry is increasingly using a money-making alternative - repackaging the sludge as fertilizer and injecting it into the nation's food chain.

Now the practice is behind a growing number of public health problems. Spreading pollutant-filled biosolids on farmland is [making people sick](#), [contaminating drinking water](#) and [filling crops, livestock and humans](#) with everything from pharmaceuticals to PFAS.

As more biosolid-linked crises develop, some farmers and environmentalists are calling for a ban on the practice.

In 2019, about 60% of sewage sludge produced by treatment facilities will be spread on farmland and gardens, as well as schoolyards and lawns. Sludge holds nitrogen, phosphorus and other nutrients that help crops grow, so the waste management industry lightly treats it and sells it cheaply to farmers who view it as a cost-saving product.

But in fact the excrement from which sludge derives has mixed with any number of 80,000 manmade chemicals that are discharged from industry's pipes or otherwise pumped into the sewer system. By the time the mix lands in treatment plants, it can teem with pharmaceuticals, hormones, pathogens, bacteria, viruses, protozoa and parasitic worms, as well as heavy metals like lead, cadmium, arsenic or mercury. It often includes PCBs, PFAS, dioxins, BPAs and dozens of other harmful substances ranging from flame retardants to hospital waste.

"Spending billions of dollars to remove hazardous chemicals and biological wastes from water, only to spread them on soil everywhere we live, work and play defies common sense," said David Lewis, a former Environmental Protection Agency scientist who opposed spreading sludge on cropland in the mid-1990s as the agency approved the use.

Previously treatment facilities burned sludge or dumped it in the ocean, but the federal government barred the practices because doing so violated clean air rules or created marine dead zones. The EPA now insists spreading the same toxic substance on farmland is safe.

Raine questioned that conclusion, noting that there is very little regulation, very little testing and no knowing what's in each batch of sludge as compositions vary.

In what biosolid testing the EPA has conducted, it identified more than 350 pollutants. That includes 61 it classifies "as acutely hazardous, hazardous or priority pollutants", but the law requires only nine of those be removed. Moreover, the EPA and wastewater treatment plants don't test for or otherwise analyze most of the 80,000 manmade chemicals.

In a scathing [2018 report](#), the EPA office of inspector general noted the agency couldn't properly regulate biosolids, even if it sincerely tried, because "it lacked the data or risk assessment tools needed to make a determination on the safety of 352 pollutants found in biosolids".

Though regulators and industry don't know what's in biosolids, there's strong evidence that it can be dangerous.

A University of North Carolina [study](#) found 75% of people living near farms that spread biosolids experienced health issues like burning eyes, nausea, vomiting, boils and rashes, while others have contracted MRSA, a penicillin-resistant "superbug".

In South Carolina, sludge containing high levels of carcinogenic PCBs was [spread on cropland](#), and in Georgia sludge [killed cows](#). Biosolids are also thought to be partly [responsible for toxic](#)

